**Remarks**

Claims 1, 2, 5-34 and 37 are pending in the present application. Claims 3, 4, 35, and 36 have been canceled. It is respectfully submitted that the pending claims define allowable subject matter.

Initially, Applicant wishes to thank the Examiner for indicating claims 17-19 to be allowable if rewritten in independent form.

Claims 1, 2, 5-16, 20-34 and 37 have been rejected under 35 USC § 103(a) as being unpatentable over Barker et al. (US 5347139) in view of Hal Rutherford et al. (EP 0401077) (hereafter Rutherford). Applicant respectfully traverses this rejection for reasons set forth hereafter.

Claim 1 recites a method of analysing a plurality of biological entities using an imaging apparatus. The method includes "a) acquiring a first image of the biological entities, the first image being acquired prior to an introduction of a marker; b) adding the marker to said plurality of biological entities, said marker being capable of identifying objects within said plurality of biological entities when detected using the imaging apparatus."

Barker does not describe acquiring a first image of the biological entities prior to a marker being introduced. In contrast, in each of the embodiments described by Barker, exposures of samples are made AFTER the targets have been tagged. The Office Action also does not provide a single citation to Barker to support this assertion that Barker acquires an image prior to a marker being introduced. To support this rejection, the Office Action cites to various portions of Barker including the Abstract and Claim 10.

The Barker Abstract is reproduced below:

> Using storage phosphor recording media, two exposures are made of a sample containing two target substances **tagged** with different radiative emitters, for example 32-P and 35-S. The first exposure, image 1, is of the sample directly on the phosphor screen. The second exposure, image 2, is made with the appropriate absorption material between the sample and screen. Both images are captured. By using simultaneous equations isotope contributions of each label can be determined. Quantitative assessment of the contributions of the isotopes, and

hence the target substances, are made by calculating isotope efficiencies both with and without the absorption filter. ABSTRACT

While the Office Action does cite to the portion of the Abstract that discusses the first and second exposures, the Office Action fails to note that the very first step of the procedure taught by Barker is to tag the two target substances being imaged.

Similarly, Claim 10 recites, in part, "[a] method for quantitative analysis of two target substances existing on a substrate comprising: **tagging** first and second target substances on a substrate with primary and secondary labels, respectively, the primary label having a more energetic radiation emission characteristic than the secondary label, radiation emitted by the labels having the property of activating storage phosphor material." (emphasis added).

Thus, both references provided in the Office Action to reject Claim 1 teach that the target substances are tagged prior to any exposures occurring. Tagging the substances prior to generating an exposure is further supported in the Barker specification. For example, the Summary of the Invention states: "[t]he above object has been achieved using radiation sensitive recording screens for constructing two, two-dimensional images of a sample having two target substances tagged with radiative emitters of different energy or intensity." Thus, Barker again states that the images are generated AFTER the sample has been tagged. Applicant submits that the Office Action fails to provide a single example where Barker teaches acquiring images prior to the samples being tagged.

Claim 1 further recites "c) recording a marked-up image in which spatial definitions of said objects are identifiable from said marker; and d) generating a spatial definition for an object in said first image using data derived from said marked-up image."

Barker also does not identify objects within said plurality of biological entities. Applicant submits that Barker is concerned with performing quantitative analysis using conventional phosphor screens. Barker does not describe a single embodiment wherein an object within the tagged substance is identified. Accordingly, as conceded in the Office Action on Page 5, Barker fails to describe "generating a spatial definition for an object in said first image using data derived from said marked-up image."

Rutherford does not make up for this deficiency. Initially, Applicant submits that Rutherford, similar to Barker describes only embodiments wherein substances are tagged prior to generating an exposure. For example, Rutherford teaches, at Col. 4, lines 33-35 that "[r]eferring to Figure 1(a), there is shown an image of a typical autoradiograph of a 1-D protein separation." Applicant submits, that as known in the art, an autoradiograph is a radiogram produced by radiation emitted from the substance being image. Thus, to produce the autoradiogram described by Rutherford, the protein must first be tagged. For example, Rutherford further teaches that "[e]ach of lanes 10 and 24 contains separated bands of radioactively labeled proteins from different samples." (emphasis added). Therefore, Rutherford similar to Barker teaches tagging the sample prior to acquiring an image.

Applicant further submits that Rutherford teaches measuring an amount of protein. Assuming arguendo that Rutherford teaches identifying a biological entity, e.g. a protein, Rutherford does not teach that any object within the protein itself is identified. Therefore, Rutherford does not teach, as asserted in the Office Action, to "generate dynamic spatial information of labeled objects". (emphasis added). Th erefore, Claim 1 is submitted to be patentable over the cited art.

Claims 2, 5-15 and 20-32 depend from Claim 1 and are therefore also considered to be patentable over the cited art.

For example, Claim 2 recites "acquiring an initial series of images before adding a marker and recording a marked up image, and applying the spatial definition to the initial series of images to enable an operator to evaluate changes in the object over time." None of the cited art describes suing a marked-up image to apply spatial definitions to an initial series of images. In contrast, the images described by both Barker and Rutherford are generated after the marker has been added. Therefore, none of the cited art can describe the mark-up image recited in Claim 2.

Claim 9 recites "e) recording a further image concurrently with the marked-up image; and f) deriving spatial definition data from said further image, and analysing said first image using the data derived from the further image." The Office Action states that Barker allegedly teaches "the further image" recited in Claim 1. Applicant disagrees. To support this rejection

the Office Action again cites to Barker, Col. 2, lines 3-30. However, the Office Action again fails to specifically state which element of Barker is being cited to reject the claim. Barker describes numerous images that are acquired using varying techniques, various imaging parameters, and at different times. However, the particular parts relied on in Barker to reject Claim 9 have NOT been provided by the Examiner. Accordingly, Applicant has been afforded a full and fair opportunity to respond to the rejection. Applicant further submits that any future correspondence that is not a Notice of Allowance should include the specific portions, i.e. exact name of the image used by Barker and the paragraph number, that are being cited to reject the pending claims.

In view of the foregoing comments, it is respectfully submitted that the cited art fails to anticipate or render obvious the claimed invention. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the telephone number listed below.

Respectfully Submitted,

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